WHAT IS CLAIMED IS:

1. A method for estimating the signal to noise ratio at a receiver of a transmitted signal having a modulated communication signal component including at least one data symbol and a noise signal component comprising the steps of:

(a) receiving a transmitted signal having a real and an imaginary component;

(b) sampling a predetermined attribute of the real component of the received signal to provide a first signal having a magnitude related to the attribute sampled;

(c) sampling a predetermined attribute of the imaginary component of the received signal to provide a second signal having a magnitude related to the attribute sampled;

(d) determining the power of the received signal from the first and second signals to provide a received power signal having a magnitude related to the power of the received signal;

(e) producing the complex conjugate of the received signal to provide a conjugate signal;

(f) delaying the conjugate signal by a predetermined length of time;

(g) combining in a first predetermined manner the delayed conjugate signal with the received signal to thereby produce a combined signal;

(h) sampling a predetermined attribute of the imaginary component of the combined signal to provide a communication power signal having a magnitude related to the power of the communication component of the received signal;

(i) removing the modulation from the communication power signal; and

(j) combining the received power signal and the communication power signal in a second predetermined manner to thereby provide an estimate of the signal to noise ratio of the transmitted signal.

2. The estimating method of Claim 1 wherein the predetermined attribute in steps (b), (c), and (h) is energy.

3. The estimating method of Claim 1 wherein the predetermined attribute in steps (b), (c), and (h) is power.

4. The estimating method of Claim 3 wherein the predetermined length of time of delay in step (f) is less than the symbol duration.

5. The estimating method of Claim 4 wherein the predetermined length of time of delay in step (f) is approximately one-half of the symbol duration.

6. The estimating method of Claim 1 wherein the combining in the first predetermined manner in step (g) includes multiplication.

7. The estimating method of Claim 1 wherein the step of removing modulation includes using an estimate of the at least one data symbol.

8. The estimating method of Claim 1 wherein the combining in the second predetermined manner in step (j) comprises the steps of:

(1) averaging the received power signal over a predetermined number of symbols;

(2) averaging the communication power signal over a predetermined number of symbols; and

(3) taking the inverse of the sum of negative one plus the quantity of the average of the received power signal divided by the average of the communication power signal.

9. A method for estimating the signal to noise ratio at a receiver of a transmitted signal having a communication signal component and a noise signal component comprising the steps of:

(a) receiving the transmitted signal having a real and an imaginary component;

(b) determining the power of the received signal to provide a first signal related to the power of the received signal;

(c) determining the power of the communication component of the received signal including the step of combining the received signal with a delayed conjugate of the received signal to thereby provide a second signal related to the power of the communication component of the received signal; and

(d) combining the first and second signals to thereby provide a third signal related to an estimate of the signal to noise ratio of the transmitted signal.

10. The estimating method of Claim 9 wherein the communication signal component is of the non-linear modulation type.

11. The estimating method of Claim 10 wherein the modulation is continuous phase frequency shift keying.

12. The estimating method of Claim 9 wherein the communication signal component is of the linear modulation type.

13. The estimating method of Claim 9 wherein the communication signal component is a constant envelope signal.

14. The estimating method of Claim 9 wherein the communication signal component is a non-constant envelope signal.

15. In a method for estimating the signal to noise ratio of a received signal having a real and an imaginary component where the received signal is representative of a transmitted signal having a communication signal component and a noise signal component, the improvement comprising the steps of:

(a) determining the power of the received signal to provide a received power signal related to the power of the received signal;

(b) producing a complex conjugate of the received signal to provide a conjugate signal;

(c) delaying the conjugate signal by a predetermined length of time;

(d) combining in a predetermined manner the delayed conjugate signal with the received signal to thereby produce a combined signal;

(e) sampling a predetermined attribute of the imaginary component of the combined signal to provide a communication power signal having a magnitude related to the attribute sampled; and

11. The estimating method of Claim 10 wherein the modulation is continuous phase frequency shift keying.

12. The estimating method of Claim 9 wherein the communication signal component is of the linear modulation type.

13. The estimating method of Claim 9 wherein the communication signal component is a constant envelope signal.

14. The estimating method of Claim 9 wherein the communication signal component is a non-constant envelope signal.

15. In a method for estimating the signal to noise ratio of a received signal having a real and an imaginary component where the received signal is representative of a transmitted signal having a communication signal component and a noise signal component, the improvement comprising the steps of:

(a) determining the power of the received signal to provide a received power signal related to the power of the received signal;

(b) producing a complex conjugate of the received signal to provide a conjugate signal;

(c) delaying the conjugate signal by a predetermined length of time;

(d) combining in a predetermined manner the delayed conjugate signal with the received signal to thereby produce a combined signal;

(e) sampling a predetermined attribute of the imaginary component of the combined signal to provide a communication power signal having a magnitude related to the attribute sampled; and

(f) combining the received power and communication power signals to thereby provide a signal related to an estimate of the signal to noise ratio of the received signal.

16. In a method for estimating the signal to noise ratio of a received signal having a real and an imaginary component of both a communication signal component and a noise signal component, where the power in the received signal is compared to the power in the communication component, the improvement including the steps of:

(a) producing a complex conjugate of the received signal to provide a conjugate signal;

(b) delaying the conjugate signal by a predetermined length of time; and

(c) combining in a predetermined manner the delayed conjugate signal with the received signal to thereby produce a combined signal.

17. The estimating method of Claim 16 including the further step of eliminating the real component of the combined signal to thereby provide a communication power signal representative of the power in the communication component of the received signal.

18. In a method for estimating the signal to noise ratio of a received signal having a real and an imaginary component of both a communication signal component and a noise signal component, where the power in the received signal is compared to the power in the communication component, the improvement including the step of eliminating the real component of the combination of the received signal and the delayed conjugate of the received signal.

19. A signal to noise ratio estimator comprising:

receiving means for receiving a transmitted signal having a communication signal component and a noise signal component where the received signal has a real and an imaginary component;

means for determining the power of the received signal to thereby provide a received power signal;

means for producing a complex conjugate signal of the received signal;

delaying means for delaying the complex conjugate signal for a predetermined duration;

first combining means for combining the delayed complex conjugate signal and the received signal to thereby provide a combined signal;

sampling means for determining an attribute of the imaginary component of the combined signal to provide a communication power signal having a magnitude related to the power of the communication component of the received signal; and

second combining means for combining the received power signal and the communication power signal in a second predetermined manner to thereby provide an estimate of the signal to noise ratio of the transmitted signal.

20. The signal to noise estimator of Claim 19 wherein the estimator operates in an in-service mode.

21. The signal to noise estimator of Claim 19 wherein the estimator operates in a blind mode.

22. The signal to noise estimator of Claim 19 wherein the estimator operates in a decision-directed mode.

23. In a method for estimating the signal to noise ratio of a received signal having a real and an imaginary component of both a communication signal component and a noise signal component where the signal to noise ratio estimate may be determined by combining a signal power estimate with a signal-plus-noise power estimate, the improvement including the steps of:

producing the signal-plus-noise power estimate by time averaging the sum of the squares of the magnitudes of the power in the real and imaginary components of the received signal;

producing the signal power estimate by combining a demodulated bit sequence of the communication signal component against samples of a delay discriminator output derived from the received signal taken at an optimal sample time to thereby produce a first signal, and

time averaging the first signal.